LAVA MOBILE ESTATES & CAMPGROUND (PWS 6030032)
SOURCE WATER ASSESSMENT OPERATOR FINAL REPORT

May 16, 2002

State of Idaho
Department of Environmental Quality

Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the act. This assessment is based on a land use inventory of the designated assessment area and sensitivity factors associated with the well and aquifer characteristics.

This report, *Source Water Assessment for the Lava Mobile Estates & Campground, Lava Hot Springs, Idaho* describes the public drinking water system, the boundaries of the zones of water contribution, and the associated potential contaminant sources located within these boundaries. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

The Lava Mobile Estates & Campground (Public Water System 6030032) is classified as a community water system. The drinking water system consists of one ground water well. The system serves approximately 61 persons through 30 connections.

Final susceptibility scores are derived from system construction scores, hydrologic sensitivity scores, and potential contaminant/land use scores. Potential contaminants are divided into four categories, inorganic contaminants (IOCs, i.e. nitrates, arsenic), volatile organic contaminants (VOCs, i.e. petroleum products), synthetic organic contaminants (SOCs, i.e. pesticides), and microbial contaminants (i.e. bacteria). As different wells can be subject to various contamination settings, separate scores are given for each type of contaminant. In terms of total susceptibility, the well rated high to all types of contamination.

For the assessment, a review of laboratory tests was conducted using the Idaho Drinking Water Information Management System (DWIMS) and the State Drinking Water Information System (SDWIS). Total coliform bacteria were detected at various sample locations in the distribution system between July 1995 and November 2001. Total coliform bacteria were found in the distribution system in October 1996, July 1997, January 2001 and March 2001, but there is insufficient evidence as to whether the source water is affected by bacterial contamination. The IOCs arsenic, barium, cadmium, fluoride, lead, selenium and nitrate have been detected in the drinking water, but at levels below the MCL for each chemical. In February 1983, August 1989, and November 1998, arsenic was detected at levels of 15, 17, and 25 micrograms per liter (µg/L) respectively, which, at the time, was below the MCL of 50 µg/L. In October 2001, the EPA lowered the arsenic MCL to 10 µg/L, giving systems until 2006 to comply with the new standard. No VOCs or SOCs have been detected in the drinking water.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources. If the system should need to expand in the future, new well sites should be located in areas with as few potential sources of contamination as possible, and the site should be reserved and protected for this specific use.

For the Lava Mobile Estates & Campground, drinking water protection activities should focus on correcting any deficiencies outlined in the sanitary survey (an inspection conducted every five years with the purpose of determining the physical condition of a water system's components and its capacity). As microbial contaminants have been a recurring problem with the system, Lava Mobile Estates & Campground may want to consider the addition of a disinfection system, instead of the current system that chlorinates the reservoir following a bacterial event. Lava Mobile Estates & Campground may also want to be proactive in investigating how to treat for arsenic before the 2006 compliance date for the new arsenic MCL (www.epa.gov). Also, any new sources that could be considered potential contaminant sources within the current delineation should also be investigated and monitored to prevent future contamination. No potential contaminants (pesticides, paint, fuel, cleaning supplies, etc.) are allowed to be stored or applied within 50 feet of the well. The well should maintain sanitary standards regarding wellhead protection. Land uses within most of the source water assessment area are outside the direct jurisdiction of the Lava Mobile Estates & Campground. Therefore partnerships with state and local agencies, industrial, and commercial groups should be established to ensure future land uses are protective of ground water quality.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan. Public education topics could include proper lawn and garden care practices, household hazardous waste disposal methods, proper care and maintenance of septic systems, and the importance of water conservation to name but a few. There are multiple resources available to help water systems implement protection programs, including the Drinking Water Academy of the EPA. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture and the Bannock County Soil and Water Conservation District. As major transportation corridors intersect the delineations (such as U.S. Route 30), the Idaho Department of Transportation should be involved in protection efforts.

A system must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Pocatello Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

SOURCE WATER ASSESSMENT FOR LAVA MOBILE ESTATES & CAMPGROUND, LAVA HOT SPRINGS, IDAHO

Section 1. Introduction - Basis for Assessment

The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the ranking of this source means.** A map showing the delineated source water assessment area and the inventory of significant potential sources of contamination identified within that area are contained in this report. The list of significant potential contaminant source categories and their rankings used to develop this assessment is also attached.

Level of Accuracy and Purpose of the Assessment

The Idaho Department of Environmental Quality (DEQ) is required by the U.S. Environmental Protection Agency (EPA) to assess over 2,900 public drinking water sources in Idaho for their relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area, sensitivity factors associated with the well, and aquifer characteristics. All assessments must be completed by May of 2003. The resources and time available to accomplish assessments are limited. Therefore, an in-depth, site-specific investigation to identify each significant potential source of contamination for every public water system is not possible. **This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

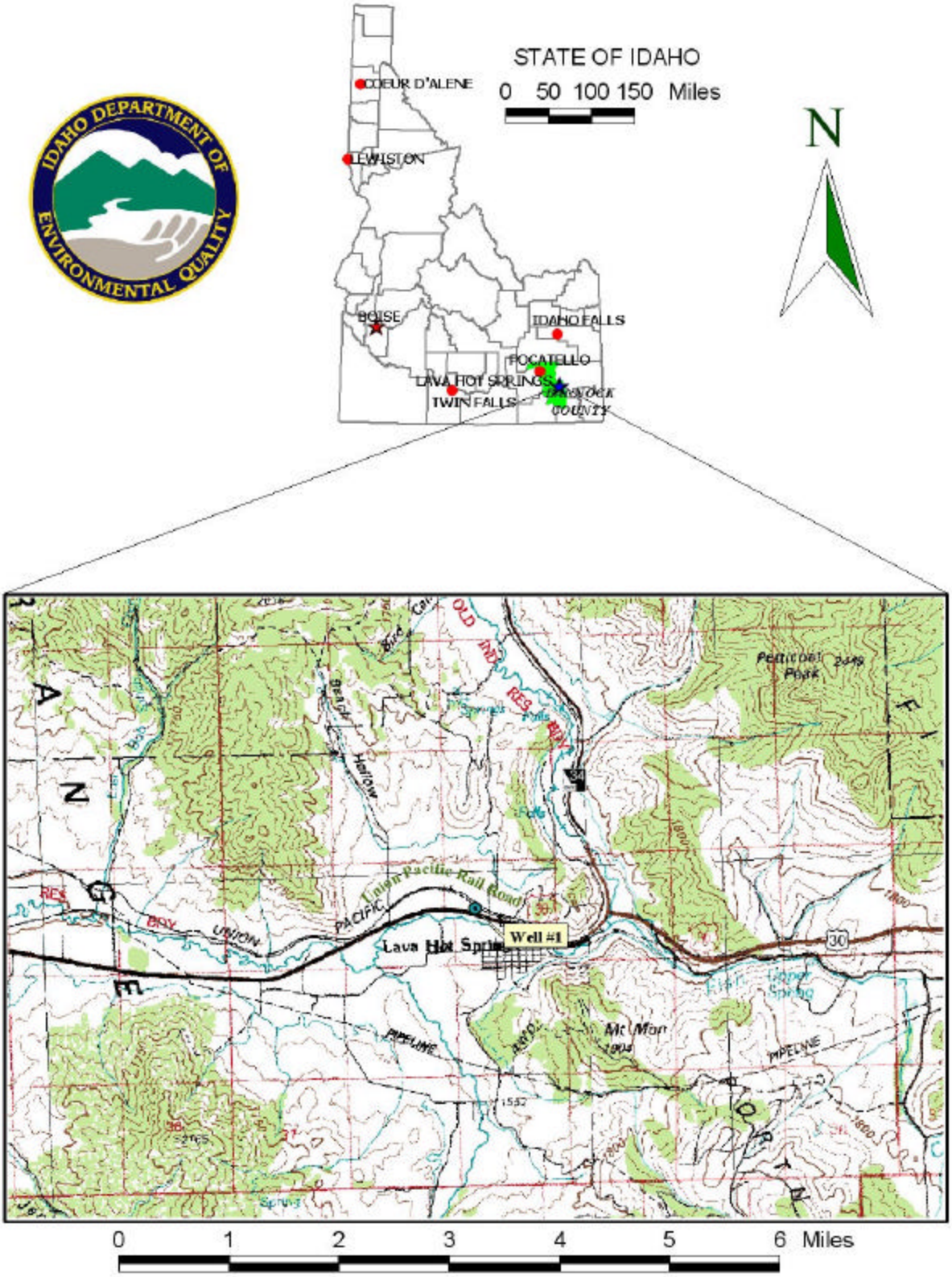
The ultimate goal of the assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. DEQ recognizes that pollution prevention activities generally require less time and money to implement than treatment of a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a drinking water protection program should be determined by the local community based on its own needs and limitations. Wellhead or drinking water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

Section 2. Conducting the Assessment

General Description of the Source Water Quality

The Lava Mobile Estates & Campground is a community public drinking water system located in Bannock County (Figure 1). This system consists of one ground water well that provides drinking water to approximately 61 persons through approximately 30 connections.

FIGURE 1 - Geographic Location of Lava Mobile Estates & Campground, PWS 6030032, Well #1



The most significant current water quality issues associated with the system is the multiple detections of total coliform bacteria in the distribution system. During an assessment of the system's chemical history, the IOCs arsenic, barium, cadmium, fluoride, lead, selenium and nitrate have been recorded in the public water system drinking water, although the reported concentrations of these chemicals were below the MCL for each chemical, as set by the EPA.

In February 1983, August 1989 and November 1998, arsenic was detected at levels of 15, 17 and 25 micrograms per liter (µg/L) respectively, which, at the time, was below the MCL of 50 µg/L. In October 2001, EPA lowered the arsenic MCL to 10 µg/L, giving systems until 2006 to comply with the new standard. No VOCs or SOCs have been detected in the drinking water.

Defining the Zones of Contribution--Delineation

The delineation process establishes the physical area around a well or spring that will become the focal point of the assessment. The process includes mapping the boundaries of the zone of contribution into time-of-travel zones (zones indicating the number of years necessary for a particle of water to reach a pumping well) for water in the aquifer. Washington Group International (WGI) was contracted by DEQ to define the public water system's zones of contribution. WGI used a calculated fixed radius model approved by the Source Water Assessment Plan (DEQ, 1999) in determining the 3-year (Zone 1B), 6-year (Zone 2), and 10-year (Zone 3) Time-of-Travel (TOT) zones for water associated with the Portneuf Valley-Gem Valley hydrologic province in the vicinity of the Lava Mobile Estates & Campground. The computer model used site specific data, assimilated by WGI from a variety of sources including operator records and hydrogeologic reports. A summary of the hydrogeologic information from WGI is provided below.

The Portneuf Valley – Gem Valley hydrologic province occupies approximately 211 square miles east of Pocatello, Idaho. The Basin and Range physiographic province is north to south trending and is bounded by the Wasatch, Chesterfield, and Portneuf mountain ranges to the southeast, east, and west, respectively. Average annual precipitation ranges from less than 15 inches on the valley floor near Bancroft to 35 inches in the mountains (Norvitch and Larson, 1970, p. 8). The average total depth for 26 wells in the Lava Hot Springs area is 188 feet, and the average depth to water is 83 feet (Baldwin, 2001).

The Portneuf and Gem valley floors consist of Quaternary alluvium, Quaternary olivine basalt flows, and sedimentary rocks of the Tertiary Salt Lake Formation (Norvitch and Larson, 1970, Figures 5 and 6, and Norton, 1981, p. 9). The basalt flows overlie and interfinger sediment deposits in the main portion of the province (Dion, 1969, p. 16). The basalts were extruded from cones and fissures near Alexander and between Niter and the Grace power plant and the Blackfoot Lava Field (Norton, 1981, p. 10). A surface geologic map of the Portneuf River Basin (Norvitch and Larson, 1970, p. 14) indicates that the western arm of the province is composed primarily of Quaternary alluvial deposits and Tertiary sedimentary rock outcrops. Ground water occurs in virtually every geologic unit; however, the principal aquifer is basalt. A broad northwest trending mound of water forms a ground water divide in the basalt aquifer at the southern margin of the province (Dion, 1969, p. 19 and Figure 5, and Norton, 1981, Figure 5). Water north of the divide flows to the Snake River, and water south of the divide flows to the Bear River drainage that empties into the Great

Salt Lake in Utah. Available water table maps indicate that the general ground water flow direction in the study area is to the Portneuf River, a tributary of the Snake River (Norvitch and Larson, 1970, p. 17, and Norton, 1981, p.15).

The primary source of ground water recharge to the basalt aquifer is precipitation on the valley floor and the surrounding mountains. Other sources are underflow from the Soda Springs hydrologic province through the gap at Soda Point and at Tenmile Pass, percolation from irrigation, canal leakage, and stream losses (Norton, 1981, p. 11, and Dion, 1974, p.19). The primary ground water discharge mechanisms are evapotranspiration, discharge through hundreds of springs and seeps, pumpage from wells, and underflow through the Portneuf Gap (Norton, 1981, p. 11; Norvitch and Larson, 1970, p 18; and Dion, 1969, p. 19).

There is little usable information available on the direction of ground water flow in the alluvial and sedimentary rock aquifers. Flow in the alluvial aquifer located in the western arm of the province can be assumed to follow the Portneuf River and have roughly the same gradient as the surface topography. Making the same assumptions for the sedimentary rock aquifer is not reasonable. The folded and fractured sedimentary rocks that underlie the Portneuf and Gem valleys also make up the bulk of the surrounding mountains. Water moving through these formations tends to follow bedding planes that pass under mountain ridges. Consequently, the flow may cross topographic divides and discharge to a valley different from that of the recharge area (Ralston et al., 1979, pp. 128-129).

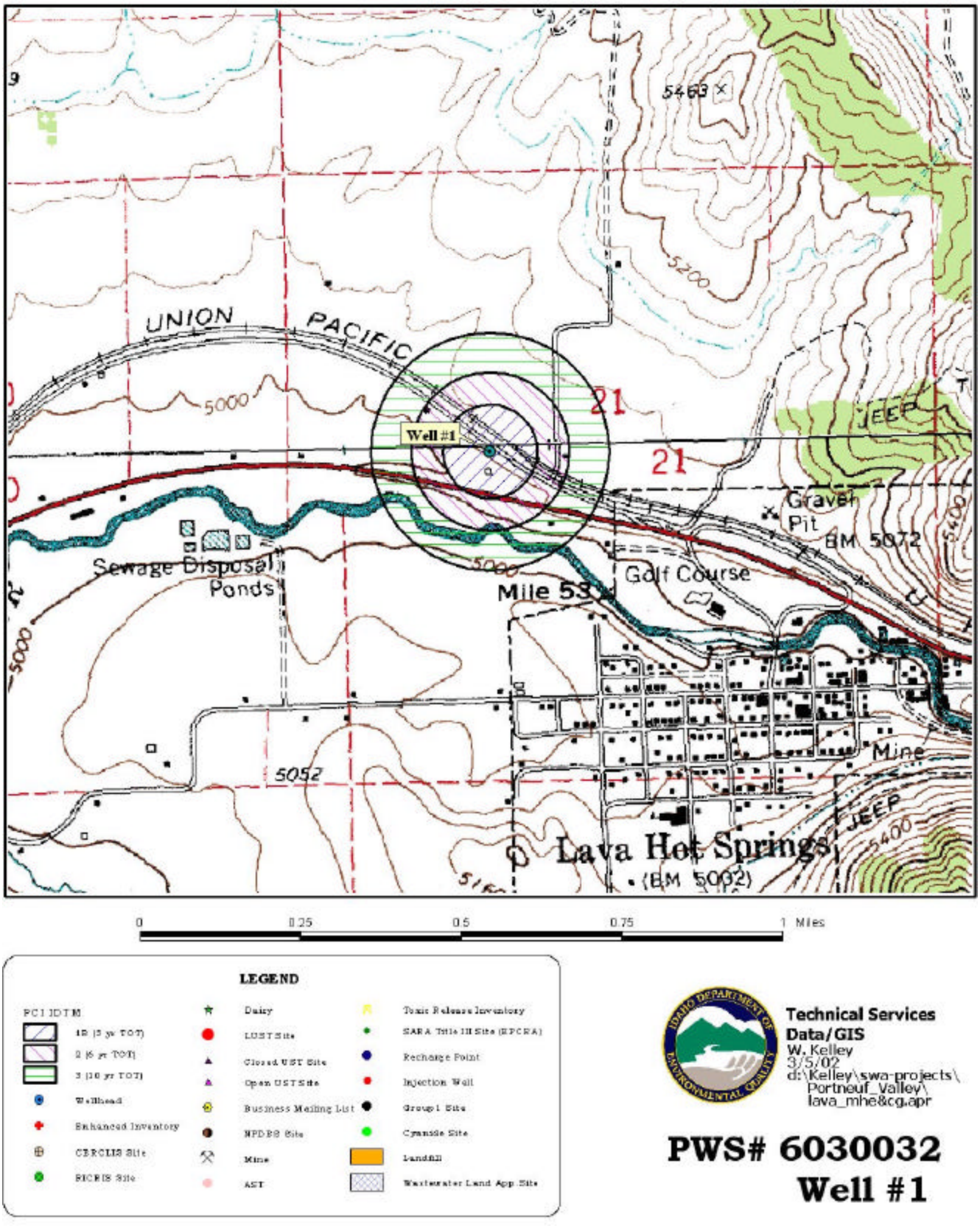
The calculated fixed-radius method was used to delineate capture zones for PWS wells completed in the sedimentary rock aquifer within the Portneuf Valley – Gem Valley hydrologic province. The fixed radii for the 3-, 6-, and 10-year capture zones were calculated using equations presented by Keely and Tsang (1983) for the velocity distribution surrounding a pumping well. The Lava Mobile Estates & Campground well is completed or assumed to be completed in limestone and sandstone, based on the driller's log and/or proximity to wells of known completion and similar depth.

Fixed-radius calculations resulted in radial distances of 386 feet for the 3-year TOT, 650 feet for the 6-year TOT, and 977 feet for the 10-year TOT for the well in the Lava Mobile Estates & Campground. The total area including the 3-, 6-, and 10-year capture zones is 0.11 square mile for the well in the Lava Mobile Estates & Campground (Figure 2). The actual data used by WGI in determining the source water assessment delineation areas are available from DEQ upon request.

Identifying Potential Sources of Contamination

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act. Furthermore, these sources have a sufficient likelihood of releasing such contaminants into the environment at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of ground water contamination. Field surveys conducted by DEQ and reviews of available databases identified potential contaminant sources within the delineation areas.

FIGURE 2 - Lava Mobile Estates & Campground Delineation Map and Potential Contaminant Source Locations



It is important to understand that a release may never occur from a potential source of contamination provided best management practices are used at the facility. Many potential sources of contamination are regulated at the federal level, state level, or both to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination, such as educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply well.

Contaminant Source Inventory Process

A two-phased contaminant inventory of the study area was conducted during February of 2002. The first phase involved identifying and documenting potential contaminant sources within the Lava Mobile Estates & Campground source water assessment areas through the use of computer databases and Geographic Information System (GIS) maps developed by DEQ. The second, or enhanced, phase of the contaminant inventory involved contacting the operator to validate the sources identified in phase one and to add any additional potential sources in the area. At the time of the enhanced inventory, the dimensions of the municipal wastewater land application site were clarified. Maps with the well location, delineated area, and potential contaminant sources are provided with this report (Figure 2). In this case, the only potential contaminant sources currently contained within the delineated area are U.S. Route 30, the Portneuf River, and the Union Pacific Railroad. In the unlikely event of an accidental spill within the delineated area, these sources could add any type of contaminant to the aquifer system.

Table 1. Lava Mobile Estates & Campground, Potential Contaminant Inventory

Site #	Source Description[1]	TOT Zone (years)[2]	Source of Information	Potential Contaminants[3]
	Union Pacific Railroad	0-3	GIS Map	IOC, VOC, SOC, Microbes
	U.S. Route 30	0-3	GIS Map	IOC, VOC, SOC, Microbes
	Union Pacific Railroad	3-10	GIS Map	IOC, VOC, SOC
	Portneuf River	3-10	GIS Map	IOC, VOC, SOC
	U.S. Route 30	3-10	GIS Map	IOC, VOC, SOC

[2] TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead
[3] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Section 3. Susceptibility Analyses

The well's susceptibility to contamination was ranked as high, moderate, or low risk according to the following considerations: hydrologic characteristics, system construction of the well, land use characteristics, and potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for each source is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. Appendix A contains the susceptibility analysis worksheet. The following summaries describe the rationale for the susceptibility ranking.

Hydrologic Sensitivity

The hydrologic sensitivity of a well is dependent upon four factors. These factors are surface soil composition, the material in the vadose zone (between the land surface and the water table), the depth to first ground water, and the presence of a 50-foot thick fine-grained zone above the water producing zone of the well. Slowly draining soils such as silt and clay typically are more protective of ground water than coarse-grained soils such as sand and gravel. Similarly, fine-grained sediments in the subsurface and a water depth of more than 300 feet from the surface protect the ground water from contamination.

Hydrologic sensitivity was rated high for the well (Table 2). Regional soils classifications within the delineated zones show a majority of moderate to well drained soils. The well log showed that the well had a vadose zone composed of a loose, soft, and hard gray lava. Ground water was first encountered in the well at about 20 feet below ground surface (bgs). In addition, the well lacks 50 feet cumulative thickness of low permeable material that helps to reduce the downward movement of contaminants.

Well Construction

Well construction directly affects the ability of the well to protect the aquifer from contaminants. System construction scores are reduced when information shows that potential contaminants will have a more difficult time reaching the intake of the well. Lower scores imply a system that can better protect the water. If the casing and annular seal both extend into a low permeability unit then the possibility of cross contamination from other aquifer layers is reduced and the system construction score goes down. If the highest production interval is more than 100 feet below the water table, then the system is considered to have better buffering capabilities. When information was adequate, a determination was made as to whether the casing and annular seals extend into low permeability units and whether current public water system construction standards are met.

The system construction score was rated high for the well. The sanitary survey conducted in August of 2000 lists a number of changes needed to comply with DEQ regulations, including replacing the existing indoor-type well seal with a well surface seal approved for outdoor use, and installing a screened, downturned air vent. The purpose of the vent is to vent the space between the casing and the column and prevent a vacuum from forming when the well turns on and draws down the water table. A vacuum could draw in contamination through joints or leaks in the casing or cause the well to slough. The well casing extends 12-inches above the ground level and is located outside a 100-year floodplain. This may decrease the chance of contaminants being drawn into the drinking water source by surface water flooding, but protection from surface water flooding is highly dependant on proper well house construction.

The well log associated with the Lava Mobile Estates & Campground indicates that the well was constructed in 1968 to a depth of 121 feet bgs. There was insufficient well log information to determine the casing thickness and depth of the annular seal. The total depth of the well is 145 feet bgs into limestone with some gravel. The average well production used in the WGI model was 3,609 ft^3/day, or 18.75 gallons per minute.

The Idaho Department of Water Resources (IDWR) *Well Construction Standards Rules (1993)* require all public water systems (PWSs) to follow DEQ standards. IDAPA 58.01.08.550 requires that PWSs follow the *Recommended Standards for Water Works (1997)* during construction. Under current standards, all PWS wells are required to have a 50-foot buffer around the wellhead and if the well is designed to yield greater than 50 gallons per minute (gpm) a minimum of a 6-hour pump test is required. These standards are used to rate the system construction for the well by evaluating items such as condition of wellhead and surface seal, whether the casing and annular space is within consolidated material or 18 feet below the surface, the thickness of the casing, etc. If all criteria are not met, the public water source does not meet the IDWR Well Construction Standards. In this case, the thickness of the casing and the annual seal cannot be determined from the well log to verify whether it is consistent with the regulations.

Potential Contaminant Source and Land Use

The potential contaminant sources and land use within the delineated zones of water contribution are assessed to determine the well's land use susceptibility. When agriculture is the predominant land use in the area, this may increase the likelihood of agricultural water infiltrating into the ground water system. Agricultural land is counted as a source of leachable contaminants and points are assigned to this rating based on the percentage of agricultural land. The predominant land use within the delineated capture zones of the Lava Mobile Estates & Campground is irrigated agricultural land. U.S. Route 30 and the Union Pacific Railroad cross all three TOT zones and the Portneuf River crosses the 6- and 10-year TOTs.

In terms of potential contaminant sources and land use susceptibility the well rated high for IOCs (i.e., nitrates), VOCs (i.e. petroleum related products), and SOCs (i.e., pesticides) and moderate for microbial contaminants (i.e., fecal coliform).

Final Susceptibility Rating

A detection above an inorganic drinking water standard (MCL), a bacterial detection at the wellhead, any detection of a VOC or SOC, or having potential contaminant sources within 50 feet of the wellhead will automatically give a high susceptibility rating to the final well ranking despite the land use of the area because a pathway for contamination already exists. Hydrologic sensitivity and system construction scores are heavily weighted in the final scores. Having multiple potential contaminant sources in the 0 to 3-year TOT zone (Zone 1B) and a large percentage of agricultural land contribute greatly to the overall ranking. The final susceptibility ranking for the well was high for IOC, VOC, SOC, and microbial contaminants. These ratings reflect the hydrologic sensitivity, system construction, and potential contaminants inventory and land use within the delineated source water assessment areas for the well.

Table 2. Summary of Lava Mobile Estates & Campground Susceptibility Evaluation

Drinking Water Source	Susceptibility Scores									
	Hydrologic Sensitivity	Contaminant Inventory				System Construction	Final Susceptibility Ranking			
		IOC	VOC	SOC	Microbials		IOC	VOC	SOC	Microbials
Well #1	H	H	H	H	M	H	H	H	H	H

H = High Susceptibility, M = Moderate Susceptibility, L = Low Susceptibility
IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Susceptibility Summary

The overall susceptibility was high for the well. These scores were most influenced by the high ratings in hydrologic sensitivity, system construction, and land use. Reduction in scores is possible if the Lava Mobile Estates & Campground comply with the sanitary survey requirements. Coming into compliance with the regulations will reduce the high system construction rating to moderate.

The most significant current water quality issues associated with the system is the multiple detections of total coliform bacteria in the distribution system. The IOCs arsenic, barium, cadmium, fluoride, lead, selenium, and nitrate have been recorded in the public water system drinking water, although the reported concentrations of these chemicals were below the MCL for each chemical, as set by the EPA. In February 1983, August 1989 and November 1998, arsenic was detected in the well and was below the MCL of 50 µg/L. In October 2001, EPA lowered the arsenic MCL to 10 µg/L, giving systems until 2006 to comply with the new standard. No VOCs or SOCs have been detected in the drinking water.

Section 4. Options for Drinking Water Protection

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources. If the system should need to expand in the future, new well sites should be located in areas with as few potential sources of contamination as possible, and the site should be reserved and protected for this specific use. Proper construction of new sources could reduce the overall susceptibility scores because the system can control the system construction score by following the *Recommended Standards for Water Works (1997)* and, to some extent, the placement of the source controls the land use score.

An effective drinking water protection program is tailored to the particular local drinking water protection area. A community with a fully developed drinking water protection program will incorporate many strategies. For the Lava Mobile Estates & Campground, drinking water protection activities should focus on correcting any deficiencies outlined in the sanitary survey. As microbial contaminants have been a recurring problem with the system, Lava Mobile Estates & Campground may want to consider the addition of a disinfection system, instead of the current system that chlorinates the reservoir following a bacterial event. Lava Mobile Estates & Campground may also want to be proactive in investigating how to treat for arsenic before the 2006 compliance date for the new arsenic MCL (www.epa.gov). Also, any new sources that could be considered potential contaminant sources within the current delineation should also be investigated and monitored to prevent future contamination. No potential contaminants (pesticides, paint, fuel, cleaning supplies, etc.) are allowed to be stored or applied within 50 feet of the well. The well should maintain sanitary standards regarding wellhead protection. Land uses within most of the source water assessment area are outside the direct jurisdiction of the Lava Mobile Estates & Campground. Therefore partnerships with state and local agencies, industrial, and commercial groups should be established to ensure future land uses are protective of ground water quality.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan. Public education topics could include proper lawn and garden care practices, household hazardous waste disposal methods, proper care and maintenance of septic systems, and the importance of water conservation to name but a few. There are multiple resources available to help water systems implement protection programs, including the Drinking Water Academy of the EPA. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture and the Bannock County Soil and Water Conversation District. As major transportation corridors intersect the delineations (such as U.S. Route 30), the Idaho Department of Transportation should be involved in protection efforts.

A system must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Pocatello Regional Office of the DEQ or the Idaho Rural Water Association.

Assistance

Public water supplies and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

DEQ Pocatello Regional Office (208) 236-6160

DEQ State Office (208) 373-0502

Website: http://www.deq.state.id.us

Water suppliers serving fewer than 10,000 persons may contact Melinda Harper (mlharper@idahoruralwater.com), Idaho Rural Water Association, at (208) 343-7001 for assistance with drinking water protection (formerly wellhead protection) strategies.

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POTENTIAL CONTAMINANT INVENTORY LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as ASuperfund≅ is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100-year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5 mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25% of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RCRA – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Appendix A

Lava Mobile Estates & Campground Susceptibility Analysis Worksheet

The final scores for the susceptibility analysis were determined using the following formulas:

1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.2)

2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.375)

Final Susceptibility Scoring:

0 - 5 Low Susceptibility

6 - 12 Moderate Susceptibility

≥ 13 High Susceptibility

Ground Water Susceptibility Report | Public Water System Name: LAVA MOBILE ESTATES & CAMPGROUND | WELL #1
Public Water System Number 6030032 | 03/19/2002 7:07:41 AM

1. System Construction		SCORE				
Drill Date	12/12/1968					
Driller Log Available	YES					
Sanitary Survey (if yes, indicate date of last survey)	YES	2000				
Well meets IDWR construction standards	NO	1				
Wellhead and surface seal maintained	NO	1				
Casing and annular seal extend to low permeability unit	NO	2				
Highest production 100 feet below static water level	NO	1				
Well protected from surface flooding	NO	1				
Total System Construction Score		6				
2. Hydrologic Sensitivity						
Soils are poorly to moderately drained	NO	2				
Vadose zone composed of gravel, fractured rock or unknown	YES	1				
Depth to first water > 300 feet	NO	1				
Aquitard present with > 50 feet cumulative thickness	NO	2				
Total Hydrologic Score		6				
3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score	
Land Use Zone 1A	IRRIGATED CROPLAND	2	2	2	2	
Farm chemical use high	NO	0	0	0		
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO	
Total Potential Contaminant Source/Land Use Score - Zone 1A		2	2	2	2	
Potential Contaminant / Land Use - ZONE 1B						
Contaminant sources present (Number of Sources)	YES	3	3	3	3	
(Score = # Sources X 2) 8 Points Maximum		6	6	6	6	
Sources of Class II or III leacheable contaminants or	YES	7	3	3		
4 Points Maximum		4	3	3		
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0	
Land use Zone 1B	Greater Than 50% Irrigated Agricultural Land	4	4	4	4	
Total Potential Contaminant Source / Land Use Score - Zone 1B		14	13	13	10	
Potential Contaminant / Land Use - ZONE II						
Contaminant Sources Present	YES	2	2	2		
Sources of Class II or III leacheable contaminants or	YES	1	1	1		
Land Use Zone II	Greater Than 50% Irrigated Agricultural Land	2	2	2		
Potential Contaminant Source / Land Use Score - Zone II		5	5	5	0	
Potential Contaminant / Land Use - ZONE III						
Contaminant Source Present	YES	1	1	1		
Sources of Class II or III leacheable contaminants or	YES	1	1	1		
Is there irrigated agricultural lands that occupy > 50% of	YES	1	1	1		
Total Potential Contaminant Source / Land Use Score - Zone III		3	3	3	0	
Cumulative Potential Contaminant / Land Use Score		24	23	23	12	

4. Final Susceptibility Source Score	17	17	17	16
5. Final Well Ranking	High	High	High	High